GARDEN STATE PARKWAY

CADD STANDARDS
AND
PROCEDURES MANUAL

NEW JERSEY TURNPIKE AUTHORITY

ENGINEERING DEPARTMENT - PARKWAY DIVISION

PO BOX 5050
WOODBRIDGE, NJ 07095

February 23, 2004

Table of Contents

List of Figures

SECTION 1 - GENERAL

1.1   Introduction

The Garden State Parkway (Parkway) CADD Standards and Procedures Manual (CADD Manual) is published by the New Jersey Turnpike Authority's Engineering Department - Parkway Division to establish uniform procedures and guidelines for mapping and contract plan document development for Parkway projects that are produced through the use of Computer Aided Design and Drafting (CADD) software.

The electronic files created during the process of developing a CADD project for a Parkway contract are to be shared and referenced by many different individuals and must satisfy various needs. The electronic files must be shareable in a format that most, if not all, participants can utilize. Therefore, standard CADD processes must be established and followed by all participants who share in the CADD development workflow. This CADD Manual outlines the required standards, conventions and formats necessary to ensure usable CADD data to all intended users.

These guidelines represent the minimum requirements that must be met for the development of CADD projects. While the guidelines contained in the CADD Manual provide a basis for uniform CADD practice for Parkway projects, precise requirements that would apply to all possible situations that may arise are impossible to give. Situations will exist where these standards may not apply. If variances from the CADD Manual are necessary for a project, they must be approved in writing by the Parkway's Project Manager and documented in the project information sheet file defined herein.

1.2   Revisions and Updates

The CADD Manual is a living document that is subject to change as we refine our documentation needs and procedures. The CADD process is an evolving process and changes to this standard are likely to occur to address:

- development of additional CADD standards and guidelines;

- uniformity of standards with other agencies;

- additional users and functionality;

- advancements in computer technology and software versions; and

- discovery of, and subsequent fixing of latent errors and omissions.

Updates to this document should be expected. In order to ensure that they are using the latest version, users are cautioned to frequently check the Parkway's web-site for changes hereto or to inquire about any changes directly with the Parkway's Project Manager. In order to ensure the reader is using the latest version, a revision date will be shown on the bottom of each page of the CADD Manual.

Corrections, additions and suggestions for additional guidelines are welcomed. All such requests should be forwarded by e-mail to the Parkway's CADD Supervisor.

1.3 Additional Resources

Consulting firms that perform CADD related work tasks for the Parkway are expected to follow the standards of this CADD Manual. However, the Consultant is only required to meet the requirements of the various sections of this Standard as is appropriate to the project scope, or as directed in accordance with the contract language for the project.

The Parkway's CADD Manual is an essential part of a project's contract provisions and is intended to be complementary and to provide complete guidelines for the performance of a project. In case of discrepancy, the contract language will govern over the CADD Manual.

In cases where the standard provisions do not apply or where further clarification of a discrepancy is required, consultants will need to apply to the Parkway's Project Manager for further guidance and coordination of the project development process.

Technical questions pertaining to the Parkway CADD requirements may be e-mailed to the Parkway's CADD Supervisor, but should be routed through the Parkway's Project Manager and the consultant's CADD Supervisor to permit technical responses.

1.4 Contact Information

New Jersey Turnpike Authority
Engineering Department - Parkway Division
P.O. Box 5050
Woodbridge, NJ 07095-5050
Phone: (732) 442-8600

CADD Supervisor:

Mathew Cho
Email: mcho@gspkwy.state.nj.us
Phone: (732) 442-8600, ext. 6466

SECTION 2 – CADD STANDARDS

2.1   CADD Platform

All drawings must be generated in Microstation V8, (*.dgn format); no other CADD file formats will be accepted. Microstation V8 must be used in order to be able to meet the Parkway's CADD standards defined herein. Any cell, font, resource, line style, etc. that are not supplied by the Parkway or part of Microstation's install must be approved by the Parkway before use.

Other software utilized by the Parkway:

- IRAS/B (Bentley)
- ArcGIS V8.3 (ESRI)
- MS Word 97 SR-2 (Microsoft)
- MS Excel 97 SR-2 (Microsoft)
- MS Access 97 SR-2 (Microsoft)
- MS PowerPoint 97 SR-2 (Microsoft)

2.2 General CADD Standards

Design files (*.dgn) can contain both vector and non-vector elements. The vector design files can contain text, lines, arcs, shapes and grouped elements. Grouped elements are either cells, graphic groups or complex elements. Non-vector elements include raster or binary data.

A. Levels
Graphic elements shall be separated by levels (layers) depending on the final uses of the file. For example, many elements shown on a particular plan sheet may not be needed on another. By placing elements on different levels the designer can control which elements are displayed and which are not.

B. Reference Files
Design files can also be referenced to other design files or even themselves. Referencing allows one drawing to be used as a base for several other types of plan sheet(s), yet remain independent of that drawing. By using reference files, base data (placed in what is referred to as " base files") need be drawn only once, which can then be referenced into various plan sheets (or what is referred to as "sheet files"). Not only does this save system memory, but also as the base data is updated, the changes are seen in the files referencing them. Use of reference files is an essential element of the Parkway's CADD standards.

Standard template reference files (base and sheet files) have been established for Parkway projects, which incorporate standard default levels, colors, lineweights, line styles and font sizes. The Parkway has also established a standard project directory structure and file naming convention to be used on its projects. It is mandatory that the standard rules set forth in the CADD Manual for attaching and naming reference files be followed. Project files created for the Parkway not adhering to these standards will not be accepted, unless prior permission is obtained from the Parkway's CADD Supervisor.

C. Base Files
Base files contain the basic topographic information of a project, as well as all other information which is pertinent to, or resulting from, the design process, i.e. property lines, monuments, baselines, traverses, proposed design features, etc. In such a file, this information is represented from end-to-end of the geography, which the project covers (as opposed to the limited length of information that is presented on an individual plan sheet).

D. Sheet Files
Sheet files are design files that display information for a specific type plan sheet (construction, tie and grade, etc.). These are the files from which hard copy is typically plotted to produce a set of plans. The only elements in the sheet file are the sheet border, north arrow, street names, and elements unique to that particular plan sheet. All other data is referenced in from base files.

2.3   Graphic Standards

A.   *Standard Sheet/Border*
- All sheet files shall be set-up to be plotted on 22" x 36" drafting film.

- Plan sheet plots shall be set-up with a 2" border on the left edge and ½" border on the remaining edges, within the overall 22" x 36" sheet size.

- CADD files of the Parkway standard border, Title Sheet and Estimate – Distribution of Quantities sheet will be provided to all consultants under contract with the Parkway (see *Figures 3.1, 3.2 and 3.3*).   The Parkway's standard border sheet shall be used as a reference file and shall not be altered.

B.   *Coordinate System*
- All drawings shall be drawn on New Jersey State Plane NAD 1983 coordinate system.

C.   *Working Units*
- Civil drawings shall utilize units of feet and tenths of feet.

- Structural drawings shall utilize units of feet and inches.

D.   *Dimensioning*
- Dimensions shall not be dropped (exploded).

E.   *Scale*
- All base drawings shall be drawn to true scale and scaled accordingly in the plot drawings.

F.   *Lines and Text*
- Line weight, colors and styles, and text font, size and placement shall be in accordance with Parkway's standards.

- Lines and text lettering shall be of adequate size and weight to produce legible reproductions of full or one – half size plan sheets.

- Generally, existing features shall be shown in a thinner line weight than is used for proposed work.

- Text shall be a minimum height of 120 leroy (1/8-inch).

G.   *Levels*
- Graphic elements shall be placed on the default levels established in the Parkway's standard reference files.

H.   *Cells (Blocks)*
- All cells shall be from the Parkway standard cell library, or shall be pre-approved by the Parkway before use.

2.4   Project Directory Structure

Each project shall have a CADD file directory that is unique for that project. The project directory name should be the Parkway's three or four-digit contract number with the following prefix: "GSP-T-", where "T" designates the type of project as defined herein. The construction contract number will be assigned by the Parkway's Project Manager. On final design contracts where construction contract plan documents are to be generated, the construction contract number shall be used. For preliminary engineering projects where final contract documents are not required to be developed, the Order for Professional Services (OPS) number should be used.

Every plan sheet of the project must have its own CADD file with the settings and view saved ready for plotting. All files, including reference files, shall be included in the project directory and final contract deliverables. All support files shall reside in the same directory (without subdirectories) and reference files shall be attached without device or directory specifications.

2.5 Electronic File Naming Convention

Standard Parkway naming conventions shall be used for all CADD project files. CADD files delivered to the Parkway not adhering to the standard naming convention will not be accepted. The electronic file naming convention established by the Parkway confers information relevant to each file. The CADD file names for base files, sheet files, topos, borings and jurisdictional maps shall conform with the standard naming conventions detailed on the following pages.

File Name Convention - Contract Base Files

TCCCCX-A-B…

T	**Required 1 char.**	**Type of contract:**		
		C	-	Construction
		D	-	Design (Study, Preliminary or Final)
		I	-	In-house
		M	-	In-house Maintenance
		P	-	Purchase Order
		R	-	Purchase Request
		S	-	Assignment
C	**Required 4 digits**	**Construction Contract or OPS number**		
X	**Required 1 char.**	**Contract suffix (Use "-" hyphen if there is no suffix)**		
A	**Required 1 char.**	**Major type:**		
		E	-	Existing
		P	-	Proposed
B	**Required**	**Type of plan:**		
		Bridge	-	Bridge
		Feat	-	Feature, Alignment
		Grade	-	Grading
		Lscape	-	Landscaping
		Survey	-	Survey
		Traf	-	Traffic
		Util	-	Utility
		Wet	-	Wetland

Examples:

C1211-E-Feat.dgn (Construction Contract 1211 Existing Feature Base File)

C11482P-Traf.dgn (Construction Contract 1148-2 Proposed Traffic Base File)

D0665-P-Util.dgn (Design Contract 665 Proposed Utility Base File)

File Naming Convention - Contract Sheet Files

TCCCCXPPSSSSz

T	Required 1 char.	Type of contract:		
		C	-	Construction
		D	-	Design (Study, Preliminary or Final)
		I	-	In-house
		M	-	In-house Maintenance
		P	-	Purchase Order
		R	-	Purchase Request
		S	-	Assignment
C	Required 4 digits	Construction Contract or OPS number		
X	Required 1 char.	Contract suffix (Use "-" hyphen if there is no suffix)		
P	Required 2 char	Type of plan:		
		ab	-	As-built
		cp	-	Change of Plan
		dr	-	Draft
		pl	-	Plan
		pp	-	Preliminary Plan
		rf	-	Reference
		sh	-	Shop
		sk	-	Sketch
		sp	-	Supplemental
		wl	-	Wetland
S	Required 4 char.	Sheet number		
z		Sheet number suffix		

Examples:

C1211-ab0001   **(Construction Contract 1211, As-built, Sheet 1)**

D0425-pl0002A   **(Design Contract 425, Plans, Sheet 2A)**

D04252pl0002   **(Design Contract 425-2, Plans, Sheet 2)**

File Naming Convention – Topos

(for Parkway use only)

ToMAAA_TDxYY

ToM	Required	Required Topo designation
A	Required 3 digits	Mile mark start
_	Required	Tenth mile separator
T	Required 1 digit	Tenth mile mark
D	Required 1 char	Compass location (Use "-" hyphen if none)
x	Required	Year separator
Y	Required 2 digits	Year

Examples:

ToM003_6Ex92   **(Topo at M.P. 3.6 East from 1992)**

ToM067_3Wx93   **(Topo at M.P. 67.3 West from 1993)**

ToM106_6-x68   **(Topo at M.P. 106.6 from 1968)**

File Naming Convention - Borings & Jurisdictionals

(for Parkway use only)

TtMAAACCCDSSxYY

Tt	Required	Required Boring (Bo) or Jurisdictional (Ju) designation
M	Required	Required mile mark separator
A	Required 3 digits	Mile mark start
C	Required 3 digits	Mile mark end
D	Required 1 char	**Sheet differentiator. (Use "-" hyphen if none)** g - Log k - Location p - Profile
S	Required 2 char	Sheet number
x	Required	Year separator
Y	Required 2 digits	Year

Examples:

BoM003006-02x52	(Boring between M.P. 3 and M.P. 6 Sht. 2 from 1952)
BoM007010k07x53	(Boring between M.P. 7 and M.P. 10 Location Plan Sht. 7 from 1953)
BoM123126p12x74	(Boring between M.P. 123 and M.P. 126 Sht. 12 Profile from 1974)
JuM003006-02x52	(Jurisdictional between M.P. 3 and M.P. 6 Sht. 2 from 1952)
JuM123126-12x74	(Jurisdictional between M.P. 123 and M.P. 126 Sht. 12 from 1974)

2.6   Standard Reference Files

The following standard template reference files with default level settings have been established and shall be used for all Parkway projects where applicable. The templates' file names must be modified to reflect the project's contract number in accordance with the Parkway's standard naming conventions.

XYYYY-E-Feat.dgn	(Existing Features Base File)
XYYYY-E-Survey.dgn	(Existing Survey Base File)
XYYYY-E-Util.dgn	(Existing Utilities Base File)
XYYYY-E-Grade.dgn	(Existing Grading Base File)
XYYYY-E-Wet.dgn	(Existing Wetlands Base File)
XYYYY-P-Feat.dgn	(Proposed Features Base File)
XYYYY-P-Survey.dgn	(Proposed Survey Base File)
XYYYY-P-Util.dgn	(Proposed Utilities Base File)
XYYYY-P-Grade.dgn	(Proposed Grading Base File)
XYYYY-P-Lscape.dgn	(Proposed Landscaping Base File)
XYYYY-E-Bridge.dgn	(Existing Bridge Base File)
XYYYY-P-Bridge.dgn	(Proposed Bridge Base File)
XYYYY-E-Traf.dgn	(Existing Traffic Base File)
XYYYY-P-Traf.dgn	(Proposed Traffic Base File)
XYYYY-plZZZZ.dgn	(Sheet File)

> **XYYYY-plRoad.dgn** (Should be used for Roadway Sheet File and should be renamed to standard Sheet File Naming Convention.)
>
> **XYYYY-plBridge.dgn** (Should be used for Bridge Sheet File and should be renamed to standard Sheet File Naming Convention.)

2.7 Standard Level Naming Conventions

The Parkway has established default leveling requirements for its standard reference files. A detailed listing of the default levels assignments and element symbology is presented in Subsection 2.8. A standard level naming convention has been incorporated for each of the standard levels and is detailed below. Custom levels shall also conform to this standard naming convention.

AB-CCC_DD

A	**Required 1 char.**	**Major Type:**		
		E	-	Exiting
		P	-	Proposed
		S	-	Sheet
B	**Required 1 char**	**Minor Type:**		
		B	-	Bridge
		F	-	Feature
		G	-	Grading
		L	-	Landscaping
		R	-	Roadway
		S	-	Survey
		T	-	Traffic
		U	-	Utility
		W	-	Wetland
C	**Required**	**Name of object**		
D		**Sub Type:**		
		Dim	-	Dimensioning
		Text	-	Text

Examples:

      EF-CurbLine   **(Existing Feature CurbLine)**

      PU-Elec-U_Text   **(Proposed Utility Electric Underground Text)**

      SR-Revision_Text   **(Sheet Roadway Revision Text)**

2.8   Standard Level Assignments

Each standard reference file has its own leveling requirements, which include standard default line styles and weights, colors, text and fonts. Text sizes are measured in leroy sizes. A detailed list of the level assignments and element symbolizing is presented in Tables 2.1 to 2.16 shown on the following pages.

TABLE 2.1   XYYYY-E-Feat.dgn - EXISTING FEATURES

DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
Median Barrier	3	0	0	-	-
Roadway or Pedestrian	0	0	0	-	-
House, Shed, Garage, etc.	3	0	GSP-BUILD1	-	-
Curb Lines	0	0	GSP-ECURB	-	-
Edge of Pavement	1	0	GSP-EOP	-	-
Chain Link	0	0	GSP-CHFNCE	-	-
Wood	0	0	GSP-WDFNCE	-	-
Guide Rail	2	0	GSP-EGUIDE	-	-
Impact Attenuators	0	0	0	-	-
Mailbox (Residential or Postal Drop)	0	0	*	-	-
Miscellaneous Features	4	0	0	-	-
Foot Path, Cart Path, Trail	3	0	0	-	-
Above or In-ground	1	0	0	-	-
Road Names	1	2	0	175	1
Railroad Tracks	0	0	GSP-RAILR	-	-
Signs and Posts	2	0	*	-	-
Topographic Text	2	0	0	120	23
Tree Line	2	0	GSP-TREELN	-	-
Shrub Line	2	0	GSP-SHRUBL	-	-
Trees	2	0	*	-	-
Retaining or Other Beside Building	2	0	0	-	-
Stream Brook, Pond, Lake, etc.	1	0	6	-	-

TABLE 2.2   XYYYY-E-SURVEY.dgn – EXISTING SURVEY

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
ES-BaseLine	Base Lines	0	0	GSP-BL	-	-
ES-BaseLine_Text	Base Line Text (Stations, etc.)	0	0	0	120	23
ES-Block_Text	Block Text	1	1	0	140	1
ES-Coord_Text	Coordinate Text	0	0	0	120	1
ES-County	County Boundary	3	2	GSP-COUNTY	-	-
ES-County_Text	County Text	0	1	0	140	1
ES-Deed_Text	Deed Text	0	0	0	120	23
ES-Easement	Easement Boundary	0	0	GSP-EASE	-	-
ES-Easement_Text	Easement Text	0	0	0	120	23
ES-Grid	Grid Lines	0	0	0	-	-
ES-Grid_Text	Grid Text	0	0	0	120	23
ES-Lot	Lot and Parcel Lines	0	0	GSP-PROPL	-	-
ES-Lot_Text	Lot and Parcel Text	0	0	0	120	1
ES-Misc_Text	Miscellaneous Text	0	0	0	120	23
ES-Monument	Monmuments	0	0	*	-	-
ES-Monument_Text	Monument Text	0	0	0	120	23
ES-Municipal	Municipal Boundary	1	1	GSP-CITY	-	-
ES-Municipal_Text	Municipal Text	3	1	0	140	1
ES-ROW	ROW Lines	2	0	GSP-ROW	-	-
ES-ROW_Text	ROW Text	2	0	0	120	23
ES-SurvMisc	Miscellaneous Survey Items	0	0	0	-	-
ES-SurvMisc_Text	Miscellaneous Survey Items Text	0	0	0	120	23

Table 2.3   XYYYY-E-Util.dgn – EXISTING UTILITIES

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
EU-Cable	Cable	2	0	GSP-ECABLE	-	-
EU-Cable_Text	Cable Text	2	0	0	120	23
EU-Elec-O	Overhead Electric	0	0	GSP-EELECO	-	-
EU-Elec-O_Text	Overhead Electric Text	0	0	0	120	23
EU-Elec-U	Underground Electric	0	0	GSP-EELECU	-	-
EU-Elec-U_Text	Underground Electric Text	0	0	0	120	23
EU-Fiber	Fiber-Optic	3	0	GSP-EFIBER	-	-
EU-Fiber_Text	Fiber-Optic Text	3	0	0	120	23
EU-Gas	Gas Line	4	0	GSP-EGAS	-	-
EU-Gas_Text	Gas Line Text	4	0	0	120	23
EU-Gas-MH	Gas Valves and Manholes	4	0	*	-	-
EU-Gas-MH_Text	Gas Valves and Manholes Text	4	0	0	120	23
EU-RoadLt	Roadway Lighting	0	0	*	-	-
EU-RoadLt_Text	Roadway Lighting Text	0	0	0	120	23
EU-Sani	Sanitary Pipes	2	0	GSP-ESAN	-	-
EU-Sani_Text	Sanitary Pipes Text	1	0	0	120	23
EU-Sani-MH	Sanitary Manholes	2	0	*	-	-
EU-Sani-MH_Text	Sanitary Manholes Text	2	0	0	120	23
EU-Storm	Storm Drainage Pipes	1	0	GSP-ESTORM	-	-
EU-Storm_Text	Storm Drainage Pipes Text	1	0	0	120	23
EU-Storm-MH	Storm Manholes, Inlets, Headwalls, etc.	1	0	*	-	-
EU-Storm-MH_Text	Storm Manholes, Inlets, Headwalls, etc. Text	2	0	0	120	23
EU-Tele-O	Overhead Telephone	5	0	GSP-ETELEO	-	-
EU-Tele-O_Text	Overhead Telephone Text	5	0	0	120	23
EU-Tele-U	Underground Telephone	5	0	GSP-ETELEU	-	-
EU-Tele-MH	Underground Telephone Manholes	5	0	0	-	-
EU-Tele-U_Text	Underground Telephone Text	5	0	0	120	23
EU-Water	Water Line	1	0	GSP-EWATER	-	-
EU-Water_Text	Water Line Text	1	0	0	120	23
EU-Water-MH	Water Valves and Manholes	1	0	*	-	-
EU-Water-MH_Text	Water Valves and Manholes Text	1	0	0	120	23

Table 2.4   XYYYY-E-Grade.dgn – EXISTING GRADING

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
EG-Cont-Maj	Major Contour Lines	2	1	GSP-MAJCONT	-	-
EG-Cont-Maj_Text	Major Contour Text	2	1	-	140	23
EG-Cont-Min	Minor Contour Lines	1	0	GSP-MINCONT	-	-
EG-Cont-Min_Text	Minor Contour Text	1	0	-	120	23
EG-HighLow	High and or Low Points	0	1	*	-	-
EG-HighLow_Text	High and or Low Points Text	3	1	0	120	1
EG-MiscGeo	Misc. Geotechnical Lines	0	0	1	-	-
EG-MiscGeo_Text	Misc. Geotechnical Text	0	0	-	120	23
EG-Soil	Soil Designation Lines	1	0	1	-	-
EG-Soil_Text	Soil Text	0	0	-	120	23
EG-SpotElev	Spot Elevation Tick Marks	0	0	*	-	-
EG-SpotElev_Text	Spot Elevation Text	1	0	-	120	23

Table 2.5   XYYYY-E-Wet.dgn – EXISTING WETLANDS

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
EW-Flood	Flood Year Delineation	1	1	GSP-100FLD	-	-
EW-FloodMisc	Miscellaneous Wetland Lines	0	0	GSP-FLHAZ	-	-
EW-Wet	Wetland Delineation Line	4	0	GSP-WETLD	-	-
EW-Wet_Text	Wetland Text	0	0	0	120	23
EW-WetMisc	Miscellaneous Wetland Lines	2	0	GSP-WETBUF	-	-

Table 2.6   XYYYY-P-Feat.dgn – PROPOSED FEATURES

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PF-Barrier	Median Barrier	2	1	0	-	-
PF-Bridge	Roadway or Pedestrian	2	1	0	-	-
PF-Build	House, Shed, Garage, etc.	3	1	GSP-BUILD2	-	-
PF-CurbLine	Curb Lines	0	1	GSP-PCURB	-	-
PF-DrCurb	Drop Curb	1	1	GSP-PDRCURB	-	-
PF-EOP	Edge of Pavement	1	1	GSP-EOP	-	-
PF-Fence	Chain Link	0	1	GSP-CHFNCE	-	-
PF-Fence	Wood	0	1	GSP-PWDFNCE	-	-
PF-GuideR	Guide Rail	3	1	GSP-PGUIDER	-	-
PF-ImpAtten	Impact Attenuators	4	1	*	-	-
PF-Mailbox	Mailbox (Residential or Postal Drop)	0	1	*	-	-
PF-MiscFeat	Miscellaneous Features					
PF-Path	Foot Path, Cart Path, Trail	0	1	0	-	-
PF-Pool	Above or In-ground	0	1	0	-	-
PF-Road_Text	Road Names	1	2	0	200	1
PF-RRTrack	Railroad Tracks	3	1	GSP-RAILR	-	-
PF-Signs	Signs and Posts					
PF-Topo_Text	Topographic Text	2	1	0	120	1
PF-Vegetation	Tree Line	2	1	GSP-TREELN	-	-
PF-Vegetation	Shrub Line	2	1	GSP-SHRUBL		
PF-Vegetation	Trees	2	1	*		
PF-Wall	Retaining or Other Beside Building	2	1	0	-	-
PF-Water	Stream Brook, Pond, Lake, etc.	1	1	6	-	-

Table 2.7   XYYYY-P-Survey.dgn – PROPOSED SURVEY

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PS-BaseLine	Base Lines	0	1	GSP-BL	-	-
PS-BaseLine_Text	Base Line Text (Stations, etc.)	0	2	0	120	1
PS-Block_Text	Block Text					
PS-Coord_Text	Coordinate Text					
PS-County	County Boundary	3	1	GSP-COUNY	-	-
PS-County_Text	County Text	3	2	0	140	1
PS-Deed_Text	Deed Text	0	1	0	120	1
PS-Easement	Easement Boundary	0	1	GSP-EASE	-	-
PS-Easement_Text	Easement Text	0	1	0	120	1
PS-Grid	Grid Lines					
PS-Grid_Text	Grid Text					
PS-Lot	Lot and Parcel Lines	0	1	GSP-PROPL	-	-
PS-Lot_Text	Lot and Parcel Text	0	1	0	120	1
PS-Misc_Text	Miscellaneous Text					
PS-Monument	Monmuments	0	1	*	-	-
PS-Monument_Text	Monument Text	0	1	0	120	1
PS-Municipal	Municipal Boundary	1	1	GSP-CITY	-	-
PS-Municipal_Text	Municipal Text	1	2	0	140	1
PS-ROW	ROW Lines	2	2	GSP-ROW	-	-
PS-ROW_Text	ROW Text	2	1	0	120	1
PS-SurvMisc	Miscellaneous Survey Items	0	1	0	-	-
PS-SurvMisc_Text	Miscellaneous Survey Items Text	0	1	0	120	1

Table 2.8   XYYYY-P-Util.dgn – PROPOSED UTILITIES

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PU-Cable	Cable	2	1	GSP-PCABLE	-	-
PU-Cable_Text	Cable Text	2	1	0	120	1
PU-Elec-O	Overhead Electric					
PU-Elec-O_Text	Overhead Electric Text					
PU-Elec-U	Underground Electric	0	1	GSP-PELEC	-	-
PU-Elec-U_Text	Underground Electric Text	0	1		-	-
PU-Fiber	Fiber-Optic	3	1	GSP-PFIBER	-	-
PU-Fiber_Text	Fiber-Optic Text	3	1	0	120	1
PU-Gas	Gas Line	4	1	GSP-PGAS	-	-
PU-Gas_Text	Gas Line Text	4	1	0	120	1
PU-Gas-MH	Gas Valves and Manholes	4	1	*	-	-
PU-Gas-MH_Text	Gas Valves and Manholes Text	4	1	0	120	1
PU-RfDrain	Roof Drain	1	1	GSP-PRFDRN	-	-
PU-RfDrain_Text	Roof Drain Text	1	1	0	120	1
PU-RoadLt	Roadway Lighting	0	1	*	-	-
PU-RoadLt_Text	Roadway Lighting Text	0	1	0	120	1
PU-Sani	Sanitary Pipes	2	1	GSP-PSAN	-	-
PU-Sani_Text	Sanitary Pipes Text	2	1	0	120	1
PU-Sani-MH	Sanitary Manholes	2	1	*	-	-
PU-Sani-MH_Text	Sanitary Manholes Text	2	1	0	120	1
PU-Storm	Storm Drainage Pipes	1	1	GSP-PSTORM	-	-
PU-Storm_Text	Storm Drainage Pipes Text	1	1	0	120	1
PU-Storm-MH	Storm Manholes, Inlets, Headwalls, etc.	1	1	*	-	-
PU-Storm-MH_Text	Storm Manholes, Inlets, Headwalls, etc. Text	1	1	0	120	1
PU-Tele-O	Overhead Telephone					
PU-Tele-O_Text	Overhead Telephone Text					
PU-Tele-U	Underground Telephone	5	1	GSP-PTEL	-	-
PU-Tele-MH	Underground Telephone Manholes	5	1	0	-	-
PU-Tele-U_Text	Underground Telephone Text	5	1	0	120	1
PU-Water	Water Line	1	1	GSP-PWATER	-	-
PU-Water_Text	Water Line Text	1	1	0	120	1
PU-Water-MH	Water Valves and Manholes	1	1	*	-	-
PU-Water-MH_Text	Water Valves and Manholes Text	1	1	0	120	1

Table 2.9   XYYYY-P-Grade.dgn – PROPOSED GRADING

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PG-Channel	Channel, Ditch, Basin	1	1	0	-	-
PG-Channel_Text	Channel, Ditch, Basin Text	0	1	0	120	1
PG-Cont-Maj	Major Contour Lines	2	2	GSP-MAJCONT	-	-
PG-Cont-Maj_Text	Major Contour Text	2	2	0	140	1
PG-Cont-Min	Minor Contour Lines	1	1	GSP-MINCONT	-	-
PG-Cont-Min_Text	Minor Contour Text	1	1	0	120	1
PG-ErosCtrl	Inlet Filter, etc	4	1	*	-	-
PG-ErosCtrl_Text	Inlet Filter, Text	4	1	0	120	1
PG-HighLow	High and or Low Points	0	1	*	-	-
PG-HighLow_Text	High and or Low Points Text	3	1	0	120	1
PG-MiscGeo	Misc. Geotechnical Lines	1	1	1	-	-
PG-MiscGeo_Text	Misc. Geotechnical Text	1	1	0	120	1
PG-RipRap	Slope Protection	1	1	GSP-ROCK	-	-
PG-RipRap_Text	Slope Protection Text	1	1	0	120	1
PG-SiltFence	Silt Fence	1	1	GSP-PSILT	-	-
PG-SiltFence_Text	Silt Fence Text	1	1	0	120	1
PG-Soil	Soil Designation Lines	1	1	2	-	-
PG-Soil_Text	Soil Text	1	1	0	120	1
PG-SpotElev	Spot Elevation Tick Marks	0	1	0	-	-
PG-SpotElev_Text	Spot Elevation Text	2	1	0	120	1

Table 2.10   XYYYY-P-Lscape.dgn – PROPOSED LANDSCAPING

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PL-Annual	Annual Plants	0	0	3	-	-
PL-Deciduous	Deciduous Trees	1	1	*	-	-
PL-Evergreen	Evergreen Trees	1	1	*	-	-
PL-Fence	Chain Link	2	2	GSP-CHFNCE	-	-
PL-Fence	Wood	2	2	GSP-WDFNCE	-	-
PL-GroundCvr	Ground Cover	1	1	GSP-TREE	-	-
PL-LscapeLt	Lighting	1	1	*	-	-
PL-Lscape_Text	Landscape Text	1	1	0	120	1
PL-MiscTree	Miscellaneous Trees	1	1	*	-	-
PL-Perenial	Perenial Plants	0	0	5	-	-
PL-Seeding	Seed Areas	1	1	1	-	-

Table 2.11 XYYYY-E-Bridge.dgn – EXSISTING BRIDGE

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PB-AbutBatter	Abutment Batter Lines	0	0	0	-	-
PB-AbutBrg	Abutment Bearings	1	1	0	-	-
PB-AbutDrn	Abutment Drain	1	1	0	-	-
PB-AbutFtg	Abutment Footings	1	1	0	-	-
PB-AbutFtgJoint	Abutment Footing Joints	1	1	0	-	-
PB-AbutFtgReinf	Abutment Footing Reinforcement	3	3	0	-	-
PB-AbutHeader	Abutment Header	1	1	0	-	-
PB-AbutJoints	Abutment Joints	1	1	0	-	-
PB-AbutPile	Abutment Piles	2	2	0	-	-
PB-AbutWall	Abutment Wall	1	1	0	-	-
PB-AbutWallJoint	Abutment Wall Joints	1	1	0	-	-
PB-AbutWallReinf	Abutment Wall Reinforcement	3	3	0	-	-
PB-BaseLine	Base Line and Station Tick Marks	0	0	0	-	-
PB-BaseLine_Text	Base Line and Station Text	1	1	0	120	1
PB-CentBrg	Center Line of Bearings	0	0	4	-	-
PB-CentGirder	Center Line of Girder	0	0	4	-	-
PB-CentJoint	Center Line of Joints	0	0	4	-	-
PB-CentPier	Center Line of Piers	0	0	4	-	-
PB-CentSplice	Center Line of Girder Splice	0	0	4	-	-
PB-ConcBeam	Concrete Beams	1	1	0	-	-
PB-Curb	Sidewalk and Curb	1	1	0	-	-
PB-DeckReinf	Deck Reinforcement	3	3	0	-	-
PB-EndSlab	End of Slab Lines	1	1	0	-	-
PB-FasciaLine	Fascia Line Work	1	1	0	-	-
PB-JointLine	Edge of Joint Lines	1	1	0	-	-
PB-LaneLine	Traveled Lane Lines	2	2	0	-	-
PB-Lighting	Lighting Standards	1	1	*	-	-
PB-MedianBarr	Median Barrier	1	1	0	-	-
PB-MedianBarrRMC	Median Barrier Conduits	1	1	0	-	-
PB-OptConstJoint	Optional Construction Joints	1	1	0	-	-
PB-Parapet	Parapet	1	1	0	-	-
PB-ParapetRMC	Parapet Conduits	1	1	0	-	-
PB-PierBrgPad	Pier Bearing Pad	1	1	0	-	-
PB-PierCap	Pier Cap	1	1	0	-	-
PB-PierCapJoint	Pier Cap Joint	1	1	0	-	-
PB-PierCol	Pier Column	1	1	0	-	-
PB-PierColReinf	Pier Column Reinforcement	3	3	0	-	-
PB-PierFtg	Pier Footing	1	1	0	-	-
PB-PierFtgReinf	Pier Footing Reinforcement	3	3	0	-	-
PB-PierFtgJoint	Pier Footing Joints	1	1	0	-	-
PB-PierPile	Pier Piles	2	2	0	-	-
PB-Sheeting	Sheeting	2	2	3	-	-
PB-Splice	Splice Linework	1	1	0	-	-
PB-UnderLt	Under Deck Lighting	1	1	*	-	-
PB-WingWall	WingWall	1	1	0	-	-
PB-WingWallBatterLine	WingWall Batter Lines	0	0	0	-	-
PB-WingWallFtg	WingWall Footing	1	1	0	-	-
PB-WingWallFtgJoint	WingWall Footing Joints	1	1	0	-	-
PB-WingWallFtgReinf	WingWall Footing Reinforcement	3	3	0	-	-
PB-WingWallJoint	WingWall Wall Joints	1	1	0	-	-
PB-WingWallReinf	WingWall Wall Reinforcement	3	3	0	-	-

Table 2.12   XYYYY-P-Bridge.dgn – PROPOSED BRIDGE

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
EB-AbutBatter	Abutment Batter Lines	0	0	0	-	-
EB-AbutBrg	Abutment Bearings	1	1	0	-	-
EB-AbutDrn	Abutment Drain	1	1	0	-	-
EB-AbutFtg	Abutment Footings	1	1	0	-	-
EB-AbutFtgJoint	Abutment Footing Joints	1	1	0	-	-
EB-AbutFtgReinf	Abutment Footing Reinforcement	3	3	0	-	-
EB-AbutHeader	Abutment Header	1	1	0	-	-
EB-AbutJoints	Abutment Joints	1	1	0	-	-
EB-AbutPile	Abutment Piles	2	2	0	-	-
EB-AbutWall	Abutment Wall	1	1	0	-	-
EB-AbutWallJoint	Abutment Wall Joints	1	1	0	-	-
EB-AbutWallReinf	Abutment Wall Reinforcement	3	3	0	-	-
EB-BaseLine	Base Line and Station Tick Marks	0	0	0	-	-
EB-BaseLine_Text	Base Line and Station Text	0	0	0	120	23
EB-CentBrg	Center Line of Bearings	0	0	4	-	-
EB-CentGirder	Center Line of Girder	0	0	4	-	-
EB-CentJoint	Center Line of Joints	0	0	4	-	-
EB-CentPier	Center Line of Piers	0	0	4	-	-
EB-CentSplice	Center Line of Girder Splice	0	0	4	-	-
EB-ConcBeam	Concrete Beams	1	1	0	-	-
EB-Curb	Sidewalk and Curb	1	1	0	-	-
EB-DeckReinf	Deck Reinforcement	3	3	0	-	-
EB-EndSlab	End of Slab Lines	1	1	0	-	-
EB-FasciaLine	Fascia Line Work	1	1	0	-	-
EB-JointLine	Edge of Joint Lines	1	1	0	-	-
EB-LaneLine	Traveled Lane Lines	2	2	0	-	-
EB-Lighting	Lighting Standards	1	1	*	-	-
EB-MedianBarr	Median Barrier	1	1	0	-	-
EB-MedianBarrRMC	Median Barrier Conduits	1	1	0	-	-
EB-OptConstJoint	Optional Construction Joints	1	1	0	-	-
EB-Parapet	Parapet	1	1	0	-	-
EB-ParapetRMC	Parapet Conduits	1	1	0	-	-
EB-PierBrgPad	Pier Bearing Pad	1	1	0	-	-
EB-PierCap	Pier Cap	1	1	0	-	-
EB-PierCapJoint	Pier Cap Joint	1	1	0	-	-
EB-PierCol	Pier Column	1	1	0	-	-
EB-PierColReinf	Pier Column Reinforcement	3	3	0	-	-
EB-PierFtg	Pier Footing	1	1	0	-	-
EB-PierFtgReinf	Pier Footing Reinforcement	3	3	0	-	-
EB-PierFtgJoint	Pier Footing Joints	1	1	0	-	-
EB-PierPile	Pier Piles	1	1	0	-	-
EB-Splice	Splice Linework	1	1	0	-	-
EB-UnderLt	Under Deck Lighting	1	1	*	-	-
EB-WingWall	WingWall	1	1	0	-	-
EB-WingWallBatterLine	WingWall Batter Lines	0	0	0	-	-
EB-WingWallFtg	WingWall Footing	1	1	0	-	-
EB-WingWallFtgJoint	WingWall Footing Joints	1	1	0	-	-
EB-WingWallFtgReinf	WingWallFooting Reinforcement	3	3	0	-	-
EB-WingWallJoint	WingWall Wall Joints	1	1	0	-	-
EB-WingWallReinf	WingWall Wall Reinforcement	3	3	0	-	-

Table 2.13   XYYYY-E-TRAF.DGN – EXSISTING TRAFFIC CONTROL

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
ET-LaneLine	Lane Stripe Line	1	1	GSP-LANEL	-	-
ET-LaneNos	Painted Lane Nos (On Pavement)	1	1	0	140	1
ET-Loop	Loop Detector	0	0	0	-	-
ET-Loop_Text	Loop Detector Text	0	0	0	120	23
ET-Marker	Raised Pavement Marker	0	0	*	-	-
ET-Signal	Traffic Signal	0	0	*	-	-
ET-Signal_Text	Traffic Signal Text	0	0	0	120	23
ET-SignG	Post Mounted Guide Sign	0	0	*	-	-
ET-SignG_Text	Post Mounted Guide Sign Text	0	0	0	120	23
ET-SignR	Post Mounted Regulatory Sign	0	0	*	-	-
ET-SignR_Text	Post Mounted Regulatory Sign Text	0	0	0	120	23
ET-SignW	Post Mounted Warning Sign	0	0	*	-	-
ET-SignW_Text	Post Mounted Warning Sign Text	0	0	0	120	23
ET-Stripe_Dims	Striping Dimensions	0	0	0	120	23
ET-Stripe_Text	Stripe Text	0	0	0	120	23
ET-StripeDotW	Dotted White Line	1	1	GST-DOTW	-	-
ET-StripeSolidW	Solid White Line	2	2	0	-	-
ET-StripeSolidY	Solid Yellow Line	2	2	0	-	-

Table 2.14   XYYYY-P-Traf.dgn – PROPOSED TRAFFIC CONTROL

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
PT-LaneLine	Lane Stripe Line	2	2	GSP-LANEL	-	-
PT-LaneNos	Painted Lane Nos (On Pavement)	2	2	0	140	1
PT-Loop	Loop Detector	1	1	0	-	-
PT-Loop_Text	Loop Detector Text	1	1	0	120	1
PT-Marker	Raised Pavement Marker	1	1	*	-	-
PT-Signal	Traffic Signal	1	1	*	-	-
PT-Signal_Text	Traffic Signal Text	1	1	0	120	1
PT-SignG	Post MTD. Guide Sign	1	1	*	-	-
PT-SignG_Text	Post MTD. Guide Sign Text	1	1	0	120	1
PT-SignR	Post MTD. Regulatory Sign	1	1	*	-	-
PT-SignR_Text	Post MTD. Regulatory Sign Text	1	1	0	120	1
PT-SignW	Post MTD. Warning Sign	1	1	*	-	-
PT-SignW_Text	Post MTD. Warning Sign Text	1	1	0	120	1
PT-Stripe_Dims	Striping Dimensions	1	1	0	120	1
PT-Stripe_Text	Stripe Text	1	1	0	120	1
PT-StripeDotW	Dotted White Line	2	2	GST-DOTW	-	-
PT-StripeSolidW	Solid White Line	4	4	0	-	-
PT-StripeSolidY	Solid Yellow Line	4	4	0	-	-

Table 2.15   XYYYY-pIROAD.dgn – PLAN SHEET for ROADWAY

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
SR-Asbuilt	As-built Information	99	1	0	120	1
SR-Chart	Ties, etc.	1	1	0	-	-
SR-Credit_Text	Credit Block Information	0	0	0	100	1
SR-Dimension	Dimension Linework and Text	1	1	0	140	1
SR-MatchLine	Match Line	4	4	0	-	-
SR-MatchLine_Text	Match Line Text	1	1	0	120	1
SR-NArrow	North Arrow	1	1	*	-	-
SR-Notes	General Notes	1	1	0	140	1
SR-Revision_Text	Revision Block Information	0	0	0	100	1
SR-Scale	Bar Scale	1	1	*	-	-
SR-Table	Quantities, etc.	1	1	0	-	-
SR-Text	Text Notes	1	1	0	140	1
SR-Title_Text	Sheet Title	3	3	1	200	1
SR-Title_Text	Sheet No., Scale	1	1	1	120	1

Table 2.16   XYYYY-pIBridge.dgn – PLAN SHEET for BRIDGE

LEVEL NAME	DESCRIPTION	COLOR	WEIGHT	LINE CODE	TEXT	FONT
SB-Asbuilt	As-built Information	99	1	0	120	1
SB-Chart	Ties, etc.	1	1	0	-	-
SB-Credit_Text	Credit Block Information	0	0	0	100	1
SB-Dimension	Dimension Linework Text	1	1	0	140	23
SB-MatchLine	Match Line	4	4	0	-	-
SB-MatchLine_Text	Match Line Text	1	1	0	120	1
SB-NArrow	North Arrow	1	1	*	-	-
SB-Notes	General Notes	1	1	0	140	23
SB-Revision_Text	Revision Block Information	0	0	0	100	1
SB-Scale	Bar Scale	1	1	*	-	-
SB-Table	Quantities, etc.	1	1	0	-	-
SB-Text	Text Notes	1	1	0	140	23
SB-Title_Text	Sheet Title	3	3	1	200	1
SB-Title_Text	Sheet No., Scale	1	1	1	120	1

2.9   Custom Line Types

This subsection is reserved for future publications.

2.10   Standard Cell Library

This subsection is reserved for future publications.

SECTION 3 – DRAWING STANDARDS

3.1   Standard Plan Sheet Requirements

A.   In order to achieve uniformity in the quality and appearance of documents, the following standards shall be used when preparing plans for a project:

1.   All plan sheets shall be plotted on 22" x 36" transparent drafting film in black ink.

2.   The drafting film material shall be double matte, high translucency polyester drafting film, minimum thickness of four (4) mils. Thermal drafting film is not acceptable.

3.   The drafting film shall have a 2" border on the left edge and 1/2" border on the remaining edges, within the overall 22" x 36" sheet size (see *Figure 3.1-Parkway Standard Border*).

4.   Borders shall contain the Path and Filename of the document as well as the date plotted at lower left corner of border (see *Figure 3.1-Parkway Standard Border*).

5.   The use of transfer appliques (stick-ons or paste-ons) will not be permitted.

6.   Lettering and characters shall conform to the following:

   a. Minimum height 120 leroy (1/8"). All As-Built Drawing lettering shall be done on CADD or with LeRoy or approved equal. Free-hand lettering is not acceptable.

   b. Characters shall be open, uniform and formed with a dense, but not wide, line.

   c. Space between characters shall be one-half the height of the tallest letter.

   d. Fractions shall also conform to size and space requirements.

   e. The crowding of information into tight lines should be avoided. It can be placed in empty areas of the drawing in conjunction with the use of pointer lines.

7.   Images produced by the use of photographic reproduction shall be from high quality originals. The quality of the reproduction shall conform to the foregoing drafting requirements. Blurred images and blotchy backgrounds will not be acceptable.

8.   The lettering and line work medium shall be black ink compatible with polyester drafting film.

9.   Drawings shall be composed to ensure that all details will fall within the borderlines.

10. The plan sheets for a construction contract shall have a consecutive numbering system.

11. The title box, revision box, north arrow, scale bar, and design shall be in accordance with the Parkway's sample plan sheet, which is shown in *Figure 3.1-Parkway Standard Border*.

12. The title block shall contain:

   a. the contract number and title;

   b. the consultant firm's name;

   c. the full name and license number of the person(s) in charge;

   d. the title "professional engineer" and/or "land surveyor" spelled out;

   e. the manually handwritten signature of the person(s) in responsible charge and the date when signed; and

   f. if applicable, the firm's certificate of authorization number as required by N.J.S.A. 45:8-56.

13. If a project includes the work of any other licensed profession, not under the immediate supervision of the licensee in responsible charge, a subtitle block of that professional firm or individual must appear on all plans involving that profession.

B. The first sheet of a contract plan set is the Title Sheet. A Title Sheet shall be prepared for all projects for which a Plan, Specification and Estimate submittal is required. The Parkway's Standard Title Sheet format shall be used (see *Figure 3.2-Parkway Standard Title Sheet*). The following minimum information shall be provided on a contract document's plan Title Sheet:

   1. contract number and title (project description);

   2. limits of construction and work, including milepost location or limits, township(s), and county(ies); and

   3. key location map of the Parkway with the location or limits of project indicated on the key location map;

   4. index of plan sheets;

   5. list of utility companies, authorities, etc. with utilities within the project limits;

   6. governing specifications; and

   7. signature lines.

3.2   Sample Sheets

Figure 3.1 - Parkway Standard Border

Figure 3.2 – Parkway Standard Title Sheet

Figure 3.3 – Parkway Standard Estimate-Distribution of Quantities Sheet

3.3   Revision Procedures

A.   No revisions shall be made to the original contract plan documents (drafting films) between the time of advertisement and award of contract.   During the bid advertisement period, additions, deletions or corrections to the contract plans shall be accomplished by addenda. Where significant changes to a plan document are needed, which require the issuance of a revised drawing, a new plan sheet plot shall be generated with all revisions clearly noted as set forth herein. CADD files, revised through addenda, shall be submitted to the Parkway immediately following the award of contract.

B.   Revisions to the original contract plan documents and CADD files shall be made in accordance with the illustration shown on *Figure 3.4-Sample Revisions*.   Erasures to the original contract plan documents and CADD files are not allowed.

C.   Where revisions are necessary on a consultant's contract plans during construction, the design consultant shall mark up a full scale print, with the changes marked in red, in accordance with the illustrations shown on *Figure 3.4-Sample Revisions*. The same print shall be submitted for approval with a transmittal letter detailing the changes.   Drafting work for the approved changes on the drafting films and CADD files shall be done by the Resident Engineer when preparing As-built Plans in accordance with the illustrations shown on *Figure 3.5-Sample As-Built Revisions*.

D.   Where the changes are not extensive and the original information can be left in tact, Addenda and Change of Plan revisions shall be documented on the original contract documents in accordance with the illustrations shown on *Figure 3.4-Sample Revisions*.   Where changes are so extensive that new drawings are necessary, the following procedure shall be used:

1.   Mark original contract plan sheet and CADD file:

"VOID – SEE SUPPLEMENTARY SHEET __R"

Mark new plan sheet and CADD file:

"SUPPLEMENTARY SHEET " and mark sheet number as __R.

2.   Any new plan sheet (not a revised sheet) shall be marked

"SUPPLEMENTARY SHEET " and mark sheet number as __A, __B, …).

3.   Update plan index on Title Sheet.

Figure 3.4 - Sample Revisions
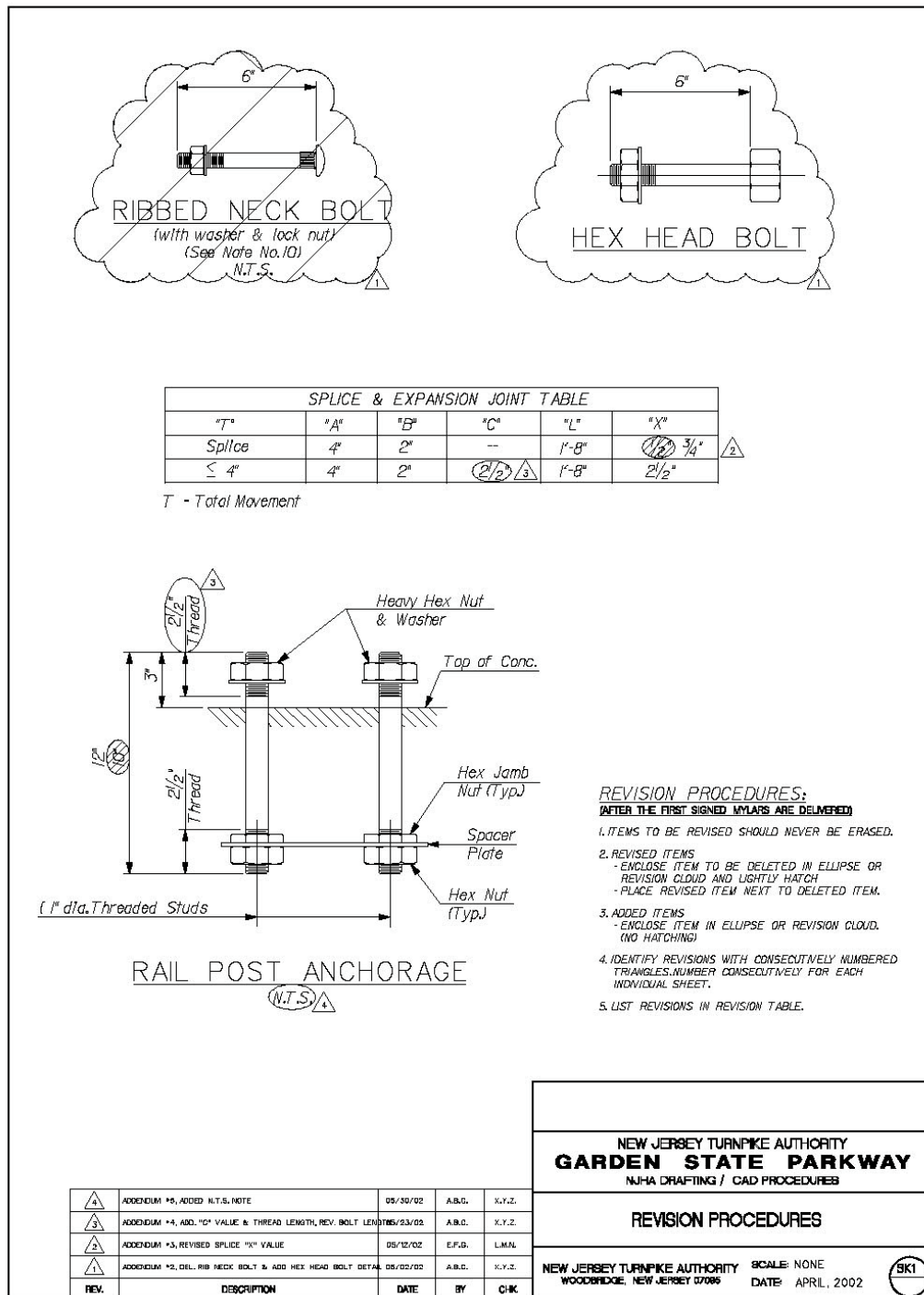
3.4   As-Built Procedures

A.   Drafting work for the approved changes on the original contract plan documents (drafting films) and CADD files shall be done by the Resident Engineer when preparing As-built Plans in accordance with the illustrations shown on *Figure 3.5-Sample As-Built Revisions*.

B.   During construction the Resident Engineer is responsible for maintaining a record set of prints for the sole purpose of recording the project's as-built conditions. After completion of construction, the original reproducible plan documents and CADD files will be provided to the Resident Engineer for incorporation of the as-built information.   All pertinent as-built information as recorded by the Resident Engineer on the record set of prints shall be transferred onto the original drafting films in **RED** ink using CADD or lettering boards where possible.   When the use of CADD or lettering boards is not possible, the Parkway's Project Manager may permit the information to be transferred using free-hand drafting with an indelible ink pen.   The line work and lettering shall neat and clear, and shall be of adequate line weight and color density to be visible when reproduced.   The following details shall be observed:

1.   Erasures on contract drafting films and CADD files are not allowed.   Any deletions should be accomplished by crossing out.

2.   The use of transfer appliques (stick-ons) will not be permitted.

3.   As the drawings are as-built, the original plan sheets shall be labeled "AS-BUILT", and the as-built revision and date shall be noted in the revision box.   The "AS-BUILT" label shall be inked (in red) in large letters in the space provided above or adjacent to the title box of **every sheet in the set**.

4.   The "Certification" statement, signed and dated by the Resident Engineer with the Firm's name, shall be inked onto the Title Sheet (see *Figure 3.6-As-Built Certification Statement*).

5.   Where the changes are not extensive and the original information can be left in tact, Addenda and Change of Plan revisions shall be documented on the original contract documents in accordance with *Section 3.3 Revision Procedures.* Where changes are so extensive that new drawings are necessary, the following procedure shall be used:

   a.   Mark original plan sheet and CADD file:

   "VOID – SEE SUPPLEMENTARY SHEET __R"

   Mark new plan sheet and CADD file:

   "SUPPLEMENTARY SHEET " and mark sheet number as __R.

   b.   Any new plan sheet (not a revised sheet) shall be marked

   "SUPPLEMENTARY SHEET " and mark sheet number as __A, __B, …).

   c.   Update plan index on Title Sheet.

6. Change of Plan sheet plot(s) that revises an existing plan sheet shall be placed directly behind the original plan sheet it revises. Any new plan sheet plot(s) (not a revised sheet) that is part of an addendum shall be placed in the final set nearest the plan sheet it pertains to.

C. Additional CADD specific issues:

1. As-built documentation shall not be done in the original CADD files. They shall be done in separate files, referencing the original files in order to prevent the original files from being altered.

2. As-builts documentation shall be on their own level (SR-Asbuilt for Roadway Plans and SB-Asbuilt for Bridge Plans) and in the color red (99).

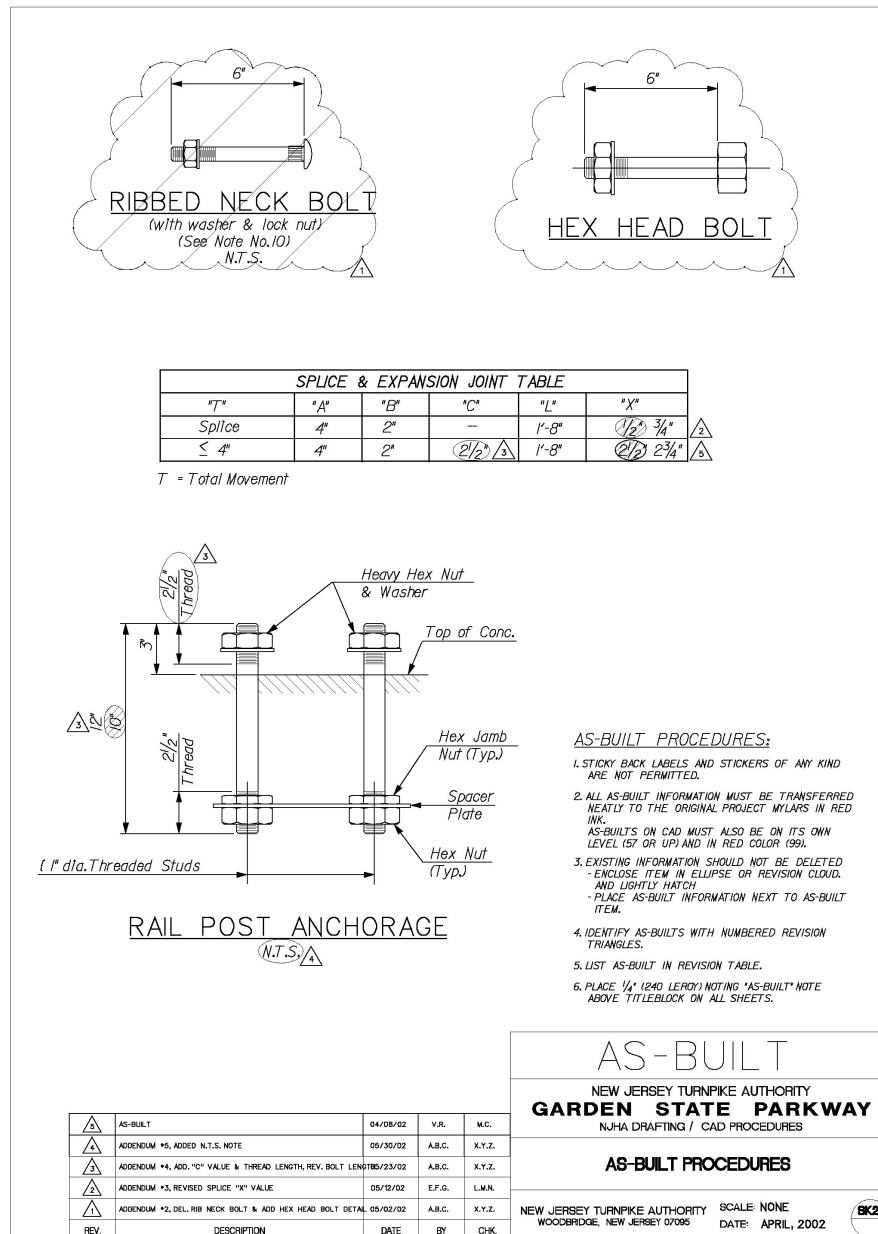*Figure 3.5 - Sample As-Built Revisions*

Figure 3.5 - Sample As-Built Revisions

Figure 3.6 - As-Built Certification Statement

"I CERTIFY THAT THE CONTRACT PLAN DOCUMENTS FOR THIS PROJECT HAVE BEEN AS-BUILT IN ACCORDANCE WITH THE ESTABLISHED PROCEDURES AND THAT THE INFORMATION CONTAINED HEREIN ACCURATELY AS PRACTICAL REFLECT THE PROJECT'S AS-BUILT CONDITIONS."

FIRM'S NAME

RESIDENT ENGINEER   DATE

SECTION 4 – DELIVERABLES AND DATA EXCHANGE

4.1 Data Exchange

The accepted media for electronic file data exchange between the Parkway and consultants are CD-ROM and the Internet. The Parkway has established an FTP (file transfer protocol) Internet site for the purpose of delivering and retrieving electronic files. All files that are to be transferred via the Internet should be in PKZIP compressed format. Any questions on assistance required for the FTP site, including requests for user access, shall be directed to the Parkway's Project Manager. For record document purposes, all final CADD files are required to be delivered to the Parkway on CD-ROM as set forth herein.

CADD files of the Parkway standard border and title sheet will be provided to all consultants under contract with the Parkway. Sample drawings and details may also be provided where applicable. Formal requests for the electronic CADD files shall be submitted through the Parkway's Project Manager.

Although the Parkway makes every effort to ensure the accuracy of its work, it cannot guarantee that the transferred files will be error free. The Parkway accepts no responsibility for costs or other adverse consequences, whether direct or indirect, that may occur to the recipient or any subsequent users of the information, due to latent errors that may not be detected.

The digital data was captured and/or developed for the Parkway. Files transferred to recipients may not be sold or transferred to others without written approval from the Parkway. The digital data may not be used for any other commercial purposes or clients.

4.2　CADD Files

A. All unnecessary references, cells, linestyles, etc. not utilized in the drawings shall be unattached and the files should be compressed using the "Compress Design" command to remove deleted items.

B. PDF plot files shall be generated for every sheet prepared in the design of the project. PDFs shall be 300 DPI, 100% scaling and custom size of 36" x22". PDF plot files shall be monochrome (black and white).

C. All CADD related files shall be placed in one directory (\DGN\) including all linestyle resource files (*.rsc), custom cell libraries, and pentables and/or plot macros used in the production of drawings. It is the primary consultant's responsibility to include all sub-consultants' files on the same CD-ROM.

D. Consultant must verify that the CADD files provided on the CD-ROM can be utilized to reproduce plan sheet plots equivalent to the final plan document deliverables.
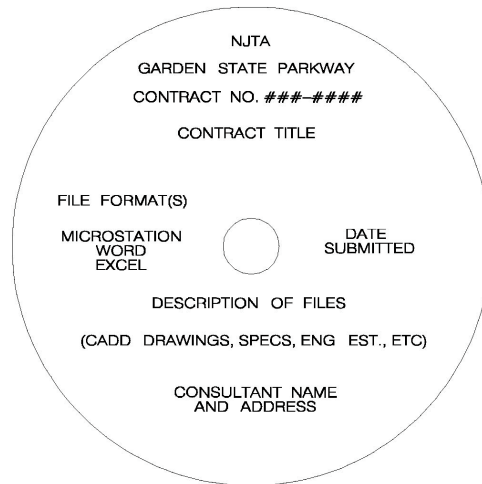
4.3   Plan Documents Deliverables

A.   Plans documents shall be prepared in accordance with the standards set forth herein and the terms and conditions of the project's Agreement for Professional Services.

B.   Unless otherwise specified in the project Agreement, formal interim project review submissions that include CADD generated plan sheets shall be submitted in full scale or one-half scale prints as directed by the Parkway's Project Manager. Interim (electronic) submissions of the CADD files may be requested by the Project Manager to assist in the review of the project's development.

C.   Unless otherwise specified in the project Agreement, final submission of all project drawings, mappings and contract document plan sheets shall include one set of original, signed plan sheet documents (on reproducible drafting film), two sets of full scale prints, and one set of electronic CADD files. Both sets of the prints shall be signed and sealed by the person in responsible charge of the preparation of the contract documents.
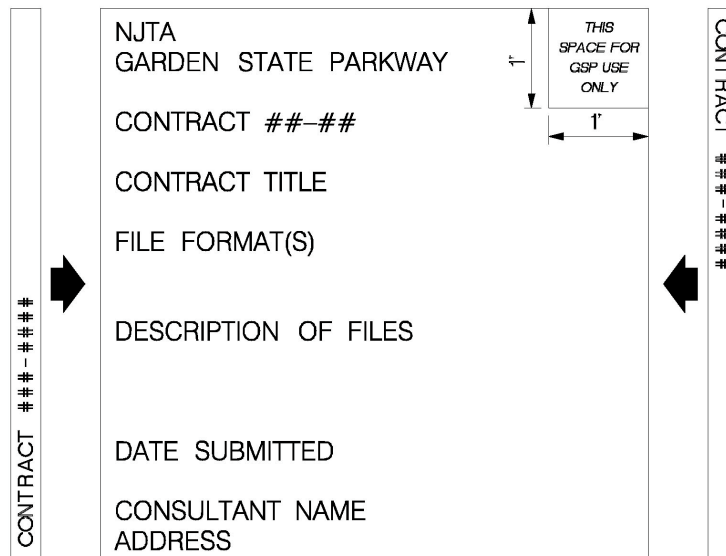
4.4   Electronic Files Deliverables

A.   An electronic copy of all final CADD files shall be provided on 650MB or 700MB CD-ROM, in a Standard Jewel Case. Labeling of the disk and jewel case shall be in accordance with *Figure 4.1-Standard Compact Disk Labeling*.

B.   Tape or Floppy Disk submission will not be accepted without prior approval.

C.   Complete project data, including contract specifications, proposal, estimates, reports and any other applicable documents as specified in the terms and conditions of the project Agreement, shall be provided in electronic copy and shall be submitted on the same CD-ROM as the graphic files.

D.   A project information sheet shall be provided to clearly identify the contents of each CD-ROM. The information shall be generated in a text file format and saved to the CD-ROM with the project files to be submitted. The following minimum information shall be included in the information sheet:

1.   the project's Order for Professional Services and Construction Contract numbers;

2.   the name of Parkway's Project Manager;

3.   the consultant firm's name, project manager's name, and a contract name and telephone number for questions regarding the CADD files (where applicable include the same for subconsultants who prepared any of the documents contained on the CD-ROM);

4.   an index of all files contained on the CD-ROM, including a general description and the author of each file, and the software format and version used to generate the files; and

5.   a detailed index of the CADD files, including each drawing's sheet number and title, CADD file name, file type, attached reference files and any remarks.

Figure 4.1 - Standard Compact Disk Labeling

GARDEN STATE PARKWAY
STANDARD
FOR COMPACT DISK
LABELING

NJTA
GARDEN STATE PARKWAY
CONTRACT NO. ###-####

CONTRACT TITLE

FILE FORMAT(S)

MICROSTATION   DATE
WORD   SUBMITTED
EXCEL

DESCRIPTION OF FILES

(CADD DRAWINGS, SPECS, ENG EST., ETC)

CONSULTANT NAME
AND ADDRESS

COMPACT DISK

CONTRACT ###-####

NJTA
GARDEN STATE PARKWAY

CONTRACT ##-##

CONTRACT TITLE

FILE FORMAT(S)

THIS
SPACE FOR
GSP USE
ONLY

1"

1"

CONTRACT ###-####

DESCRIPTION OF FILES

DATE SUBMITTED

CONSULTANT NAME
ADDRESS

JEWEL CASE